

CA
ND

-61N12



CANADA

NATIONAL DEFENCE

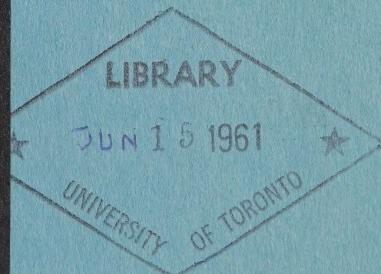


3 1761 11708149 7

Canadian National
defence dept. Government
publications
16-37

EXPLANATORY
MATERIAL
RELATING TO
1961 - 1962
ESTIMATES

MAY, 1961
OTTAWA





CANADA

NATIONAL DEFENCE

Government
Publications

CAI
ND
61N12

EXPLANATORY
MATERIAL
RELATING TO
1961 - 1962
ESTIMATES

MAY, 1961
OTTAWA

LIBRARY

760024

UNIVERSITY OF TORONTO

CONTENTS

	Page No.
Foreword	
The Roles and Activities of the Armed Services and the Defence Research Board	
Royal Canadian Navy	1
Canadian Army	11
Royal Canadian Air Force	19
The Defence Research Board	27
Defence Appropriations and Expenditures	35
 TABLES	
Comparison of Expenditures by Fiscal Year	47
Table of DND Expenditures by Major Category	49

CONTENTS

Page No.

Foreword

The Role and Activities of the Armed Services
and the Defense Research Board

I	Royal Canadian Navy
II	Royal Canadian Army
III	Royal Canadian Air Force
IV	The Defense Research Board
V	Defense Appropriations and Expenditures
VI	THREES
VII	Comparison of Expenditures by Fiscal Year
VIII	Types of DND Expenditures by Major Category

FOREWORD

For the convenience of Members of Parliament, the information contained in this booklet is intended to serve as a factual outline of the operations of the Armed Services and of the Defence Research Board together with an explanation of funds requested for the fiscal year 1961-62.

THE ROLES AND ACTIVITIES OF THE
ARMED SERVICES AND THE
DOUGLAS S. HARKNESS
Minister of National Defence

FORWORD

Digitized by the Internet Archive
in cooperation with the University of Toronto
with funding from the University of Toronto

Digitized by the Internet Archive
in 2023 with funding from
University of Toronto

ROYAL CANADIAN NAVY

General

The role of the RCN in support of Canadian national policy and the maintenance of peace and security in Canada's waters from the West Coast to the Atlantic, to the Arctic, and to the Great Lakes, together with the Army and the Canadian Armed Forces to the French régime as may be required, is being developed at approximately 1,600 miles.

Most of Canada's naval forces are committed to NATO in readiness in the Atlantic area, the remainder

THE ROLES AND ACTIVITIES OF THE ARMED SERVICES AND THE DEFENCE RESEARCH BOARD

Armed forces activities are organized around three main services—the naval force under SACLANT, and maritime areas in the Pacific Ocean under MARCOMB and MARCOMAR.

Initial roles of the RCN have been defined by deployment in support of the objectives directed by the Government, and plans have been made for their most effective use in this role should the requirement arise.

Post-War Development of the RCN

Established only immediately after the Second World War, the RCN had a personnel strength of about 7,000 in 1945 and now has a strength of approximately 15,000, including 1,000 members of the

ROYAL CANADIAN NAVY

General

The role of the RCN in support of Canadian defence policy is the maintenance of sea communications and defence of Canada against attack from the sea; to contribute to the collective defence of the NATO area against attack from the sea, and to contribute naval forces to the United Nations as may be required. It is substantially an anti-submarine (A/S) role.

Most of Canada's naval forces are committed to NATO in wartime. In the Atlantic area the aircraft carrier, 18 destroyer escorts and 11 frigates would be made available to the Supreme Allied Commander Atlantic (SACLANT) in the event of hostilities. On the West Coast 7 destroyer escorts and 7 frigates would be made available for the defence of the Canada-US region of NATO in co-operation with the US Navy. The RCAF provides 40 maritime aircraft in the Atlantic Command to co-operate with naval forces under SACLANT, and 12 maritime aircraft in the Pacific Command under national command.

Ships of the RCN may on short notice be deployed in support of UN operations as directed by the Government, and plans have been made for their most effective use in this role should the requirement arise.

Post-War Development of the RCN

Following general demobilization after the Second World War, the RCN was left with a personnel ceiling of about 7,500 officers and men and an ever decreasing number of ships in commission. Canadian support of the

formation of NATO in 1949 and the outbreak of the Korean War in 1950 resulted in the RCN personnel ceiling being raised to 20,000. Canada then accepted a NATO commitment to provide a minimum of 1 aircraft carrier and 29 ocean escorts in the Atlantic for SACLANT in the event of major hostilities. Through the NATO principle of collective security we thus achieve maximum defence against attack from the sea. This NATO naval commitment has been constantly maintained to date.

As a result of this naval expansion after 1950, the Canadian shipbuilding industry embarked on a new construction and modernization program for the RCN. Seven destroyer escorts of the St. Laurent class were built, embodying a completely new Canadian hull design and the latest anti-submarine weapons. These were followed by another seven similar ships called the Restigouche class, again embodying further improvements in the weapons systems. These ships are the pride of the RCN. They are built from the keel up for the specific role of anti-submarine warfare, and have not been surpassed in A/S capability by ships of any other navy.

All 11 Tribal class destroyers were progressively converted from primarily gun armament to the A/S role. Similarly, all 18 wartime built frigates in reserve were fully modernized to extend their life and improve their fighting efficiency, and commissioned for service in the operational fleet. The aircraft carrier Bonaventure was completed from the basic hull stage to a fully equipped modern A/S carrier with angled deck, steam catapult and mirror landing equipment. This ship was purchased and commissioned into the RCN in 1957, at which time the older carrier Magnificent was returned to the Royal Navy.

The RCN operates one escort maintenance ship on each coast, in order to maintain ocean escorts between refits without dependence on dockyard facilities, and to provide limited services other than those classified as replenishment, either in or away from home ports. These ships were built by Canada for the Royal Navy in 1944 under a wartime agreement and were acquired by the RCN in 1952-53. They served a number of purposes until employed again for escort maintenance duties in 1959.

Aircraft

The front line aircraft now in service in the RCN are of three types. The CS2F Tracker is a fixed wing carrier borne A/S aircraft, built by DeHavilland in Malton. The Tracker carries the latest detection devices and weapons, giving it a search and kill capability against submarines as well as a bomb and rocket capability against above water targets.

A/S helicopters are also in operation with the fleet. At the present time they operate at sea from the carrier, but will soon also be operating from a small flight deck to be fitted to most of the destroyer escorts. The A/S helicopter is also able to undertake general tasks which are likely to be of great use in any United Nations operation. There is a continuing need foreseen for helicopters at sea.

The third type of operational aircraft in the fleet is the Banshee jet, an all-weather high altitude fighter machine, with the primary role of combatting reconnaissance and attacking hostile aircraft and ships at sea. The Banshee aircraft can be operated until the end of 1962, at which time the airframe reaches the end of its life and these aircraft will be phased out. Studies are

being made as to the future requirement for defence against air attack.

Composition of the Fleet

The operational fleet today consists of the following ships:

Atlantic Command

Pacific Command

1 Aircraft Carrier with
Tracker and Banshee
aircraft and A/S
helicopters.

7 Restigouche class
destroyer escorts.

11 Tribal class destroyer
escorts

7 frigates

6 minesweepers

1 escort maintenance ship

7 St. Laurent class
destroyer escorts

7 frigates

4 minesweepers

1 escort maintenance
ship

Up to 3 training submarines on loan from the Royal Navy.

* * * *

The US submarine Burrfish has been acquired on loan from the US Navy to provide much needed anti-submarine training facilities in the Pacific Command.

This submarine will be manned with a Canadian crew and commissioned as HMCS Grilse in May, 1961.

Officers and Men of the Fleet

The officer structure of the RCN has undergone a major change in that the former system of career planning within specialized fields of the executive, engineer, electrical, instructor, supply, constructor, and ordnance branches has been superseded. In the new structure most officers are grouped in a General List, while chaplains, medical officers and a few special duty officers are grouped in a Special List. This new system will provide more effective employment and broader career planning, and give greater opportunities to more officers to achieve higher rank. Officers will be educated to higher levels than was general in the past, and their naval technical training will be broader.

A new trade structure for men has been established, based on the principle that the man who uses an item of equipment shall also maintain it. Men who were formerly specialists in some particular aspect of naval work now receive broader cross training and experience which will render them capable of being both operators and maintainers. This greater flexibility of employment of manpower will permit a more effective use of men and increase their career opportunities.

Command, Operation and Administration of the Fleet

The command, operation and administration of the fleet and fleet establishments in peacetime is delegated to the Flag Officer Atlantic Coast and the Flag Officer Pacific Coast. Integrated RCN-RCAF Maritime Headquarters have been established both at Halifax and

Esquimalt. On each coast the Maritime Commander is the respective Flag Officer, with the Deputy Maritime Commander being an RCAF Air Commodore. The Canadian Maritime Commanders have operational control of both RCN and RCAF anti-submarine forces allocated to them in their respective areas. These headquarters operate twenty-four hours a day. A proportion of the ships and aircraft are constantly at sea and airborne in their primary role of defence against attack from the sea.

Fleet Operational Training

The day-to-day work of the officers and men in the operational ships and aircraft centres on training for war. Once individuals reach a certain level of proficiency they receive team training in their department; each department is trained to work with the others until the single ship becomes a trained unit; ships are then exercised in groups, and finally all units are welded into an operational entity, the task force or fleet. The process is continuous.

During 1960, apart from the lower levels of operational training, ships and aircraft including RCAF maritime aircraft, took part in a total of 23 major exercises. Some of these exercises were national, but most involved working with other NATO navies in operational A/S exercises. These operations ranged from the Norwegian Sea to the Caribbean. The most extensive single exercise, involving virtually all the Atlantic Command naval and RCAF maritime forces, was a joint US-Canadian anti-missile defence exercise, centered off Halifax. It extended over 14 days. Several US submarines provided realistic and elusive targets. Similar manoeuvres took place in the Pacific.

In all these exercises, the mixing of the wide and varied experience of the older Royal and US Navies, combining with the specialized and concentrated experience of the Canadian maritime forces, provides lively and invaluable operational experience for all individuals taking part.

The RCN has long used the RN logistic facilities of Bermuda during the winter months in order to carry out the winter fleet exercise period in reasonable weather conditions which cannot be found off the East Coast from November to March. All operational ships in the Atlantic Command were extensively exercised in the Bermuda area during the winter of 1960 under the command of the Senior Canadian Officer Afloat (Atlantic).

Ship Construction, Modernization and Maintenance

During 1960 the construction of six new Mackenzie class destroyer escorts was continued at the major shipyards at Halifax, Sorel, Lauzon, Montreal, Vancouver and Victoria. These are improved Restigouche class ships, and will bring to 20 the number of Canada's tested and proved first rate new A/S ships. The last two and eventually all ships of this class will be equipped with the Canadian developed variable depth Sonar, and also a helicopter platform and hangar for the operation of an A/S helicopter.

Also under construction at Lauzon is a tanker supply ship of 22,000 tons displacement with suitable speed and endurance to provide mobile logistic support for the fleet in the form of petroleum products, ammunition, torpedoes, provisions, general stores and helicopter facilities.

A new research vessel is being designed to meet the specific requirements of naval scientific research in the Pacific Command.

Extensive modernization of the seven ships of the St. Laurent class and the Crusader, an earlier type destroyer escort, has been approved. These vessels will be fitted with the new variable depth Sonar, and will carry A/S helicopters to extend their detection and destruction capability against submarines.

In an effort to achieve higher standards of ship maintenance, particular efforts have been directed toward fundamental studies of particular equipments. Assistance from the Civil Service and from industry has been sought, and already excellent results have been achieved. In the care and husbandry of ships, great savings have been made, and more is yet to be done through the careful planning of the maintenance that can be carried out by the officers and men serving in the ship. These efforts not only increase operational availability but reduce dockyard costs.

Research and Development

Continued close liaison and collaboration exists with the Defence Research Board. The past imaginative work done in the naval research laboratories by DRB scientists is being continued. An example is the design and production of the first successful variable depth Sonar, a device which promises a three to four hundred percent improvement in submarine detection ranges. Extensive and promising work is going ahead in achieving longer Sonar ranges in oceanography, and in associated basic research. Communications research and weapon development are other important facets in this field.

The procurement of the USN Mark 44 torpedo was approved subject to successful evaluation. Trials have demonstrated this weapon's superiority in speed, depth and acquisition capabilities against deep diving submarines compared to the torpedo now in use in the RCN. It is expected that delivery of prototypes will be made in 1961.

Miscellaneous Activities

Large numbers of naval personnel in the Atlantic Command assisted provincial authorities in fighting the serious forest fires which plagued Nova Scotia during the prolonged summer drought of 1960.

Canada presented the Netherlands with 17 CS2F Tracker aircraft under the NATO mutual aid agreement at HMCS Shearwater in December, 1960.

Royal Canadian Navy (Reserve)

The peacetime role of the Royal Canadian Navy (Reserve) is to maintain an organization capable of providing personnel for the support of the RCN ashore and afloat in time of emergency, and, at the same time, of providing naval facilities and naval representation in 21 cities across Canada. In an emergency, RCN(R) personnel would be called upon to activate or augment communication facilities, provide trained personnel for headquarters staffs, the naval control of merchant shipping and harbour defences, and assist in national survival.

During the year, in addition to normal training at the Naval Divisions across Canada, 1,835 officers, men and wrens of the Reserves were trained at the Great

Lakes Training Centre at Hamilton and in RCN ships and establishments. Two frigates and a naval auxiliary vessel were provided for Reserve sea training in the Great Lakes. Four hundred and forty-six reservists received training in ships of the various operational squadrons stationed at Halifax and Esquimalt.

There are two naval reserve air squadrons, based at Toronto and Victoria, which continued to provide air training for aircrew of the RCN(R).

CANADIAN ARMY

General

The Canadian Army may be called upon to carry out any or all of the following tasks:

- a. Ground defence of the Canada-US Region of NATO in conjunction with the other Canadian Services and United States forces.
- b. Operations as part of the ground forces assigned to NATO Allied Command Europe.
- c. Participation in United Nations operations.
- d. Operations in support of National Survival in event of nuclear attacks on Canada.
- e. Aid to civil authorities in both peace and war.

To meet the above tasks, the Canadian Army is constantly studying its organization in the light of changing threats and new developments in techniques and weapons. These studies are carried out together with the British and United States Armies as well as on a NATO basis. The exchange of information, exercises and trials, which are part of these studies, bring about certain changes in organization and equipment which are designed to increase the fighting efficiency of the Army.

The Regular Army field force is organized on a brigade group basis. There are four infantry brigade groups, each having its own armour, artillery, signal, engineers and service elements. In addition to the field force, there are training schools and static units for

command and administration of the Regular Force and the Militia.

The Royal Canadian Dental Corps and the Canadian Postal Corps, composed of Army personnel, provide services to the Navy, Army and Air Force. The Royal Canadian Army Service Corps, in addition to supplying the Army, also provides food and special ration packs for the Royal Canadian Air Force in Canada and for certain Royal Canadian Navy signals stations and United States Air Force early warning stations in Canada.

NATO

The 4th Canadian Infantry Brigade Group carries out extensive training exercises independently and in conjunction with other NATO forces in the Northern Army Group in Northwest Europe.

During October - November 1960, three major units and approximately 1/3 of the personnel of smaller units were rotated to the brigade in Europe. The Royal Canadian Dragoons, 1st Regiment Royal Canadian Horse Artillery and the 2nd Battalion, The Queen's Own Rifles of Canada returned to Canada while the 8th Canadian Hussars, 3rd Regiment Royal Canadian Horse Artillery and First Battalion, The Queen's Own Rifles of Canada went to Germany.

North American Continent

In the summer of 1960, three brigade group concentrations were held in Canada. In addition to normal training, exercises were conducted to test new types of organizations, equipment and tactical doctrine. 1st Canadian Infantry Brigade Group concentrated in

Camp Wainwright, Alberta; 2nd Canadian Infantry Brigade Group in Camp Petawawa, Ontario, and the 3rd Canadian Infantry Brigade Group in Camp Gagetown, N.B.

During the winter, 2 RCR, 2 PPCLI and 2 R22eR were exercised as battalion groups in their airborne/airtransportable role. The remaining units of the Field Force (Canada) carried out winter training near their unit locations. Cold weather tests and training were also conducted at Fort Churchill, Manitoba.

The Army is responsible for the coordination of all military aid to civil authorities in Canada, other than in search and rescue operations. During 1960 there were a number of occasions when the Department of National Defence was called on to assist Provincial Government authorities in forest fire fighting, flood control and similar emergencies. During the month of September, 1960, for example, there were a total of 850 Army personnel assisting in forest fire control in the provinces of Prince Edward Island, Nova Scotia and Quebec.

United Nations

Canadian Army commitments to the United Nations were increased during 1960 with the despatch of a Canadian contribution to the United Nations Force in the Congo. UN commitments include, besides this Force, the Canadian element with the United Nations Emergency Force in the Middle East and Canadian representation on the truce supervisory organizations in Palestine and Kashmir. These tasks require a total of 1,157 Army personnel, and through rotation a total of 4,732 Canadians have served in these four UN organizations since 1949.

The Army has 851 all ranks serving with the United Nations Emergency Force keeping the peace in

the Gaza Strip. Canadian units with this Force include a Reconnaissance Squadron, a Signals Squadron, a Transport Company and a Field Workshop.

In July, 1960, Canada was requested by the United Nations to assist in the formation of a United Nations Force for service in the Congo. This request, for a signals unit and for certain additional personnel, was agreed to by Canada, and the first Canadian Army personnel arrived in Leopoldville on 1 August, 1960. The Army Signals Unit, comprising 280 all ranks, provides the important communications link between UN Headquarters in Leopoldville and the UN Military Sector Headquarters in other parts of the country. The Canadian Army contribution includes, within the unit of 280, a number of staff officers serving at UN Headquarters, also a Canadian Provost Corps Section and a Food Service Section working for this headquarters.

UN truce supervision duties for the Army continue in Kashmir with the UN Military Observer Group India-Pakistan, which includes 8 Canadian Army officers, and in Palestine with the UN Truce Supervisory Organization, which has 18 Canadian officers on strength.

Canada also participates in truce supervisory duties as one of the members of the International Commission in Indo-China. A total of 61 all ranks are now serving in Viet-Nam and Cambodia with this Commission, and a total of 729 Army personnel have served in Indo-China since 1954.

Militia

At 31 December, 1960, the strength of the Militia was 42,661. A total of 17,215 all ranks trained at summer camps. The primary role of this component of

the Army in survival operations will include re-entry operations, first aid training and decontamination. In addition, the Militia has certain responsibilities for internal security in the event of war and may be called upon to provide partially trained units and individuals that may be needed on mobilization.

Canadian Rangers

The strength of the Canadian Rangers was 2,284 on 31 December, 1960. The Rangers form a Corps of the Reserve Army and are organized to perform special duties in northern, coastal and other isolated areas of Canada in which they are located. Their detailed knowledge of their area permits them to carry out certain functions which cannot be done conveniently or economically by other elements of the Canadian Army.

Equipment

The recent authority to purchase light tracked carriers (the BOBCAT), light reconnaissance helicopters and Counter Mortar Radars will improve considerably the battle effectiveness of our field forces. Procurement of this new equipment, together with the previously approved 762mm surface-to-surface rocket launcher (HONEST JOHN) and rockets, navigational aids for vehicles, and a new heavier tank gun for the CENTURION Tank, will result in the Canadian Army having been almost completely re-equipped since 1945.

Major items of new equipment which have been obtained for the Army in the past year include additional quantities of the new 9mm sub-Machine gun, training quantities of a new anti-tank missile, and first deliveries of the new C42 radio set to replace the old No. 19 set.

Contracts have been let for sufficient C42 sets to re-equip the Regular Army and also meet the needs of the Militia for its National Survival role. In addition, a wide range of radiation monitoring instruments and rescue equipment is being received for issue to the Regular Army and Militia for their National Survival responsibilities.

Survival Operations

On 1 September, 1959, certain Civil Defence responsibilities were assigned to the Army. The Army will be supported in these operations by the Royal Canadian Navy and the Royal Canadian Air Force with the Defence Research Board providing the necessary assistance in the field of research.

A National Survival Attack Warning System has been established to give warning of an impending attack. Canadian Army sections located in the NORAD Regional Headquarters adjacent to Canada and in the Attack Warning Centre at St. Hubert, PQ have access to early warning information which enables them to keep a watch over friendly and enemy air traffic over Canada and Northern United States. Warning centres have been established, in Ottawa and in each province. These are manned 24 hours a day and are capable of passing a warning of enemy attack to the sirens located in the principal centres of population on a moment's notice. In conjunction with the Department of Transport, the Emergency Measures Organization and the Canadian Broadcasting Corporation, planning is in progress for an interim system of emergency broadcast stations to complement the siren warning coverage.

The establishment of a Nuclear Detonation and Fallout Reporting System has been approved. The system

will provide for the reporting of nuclear detonations wherever they occur, giving ground zero, height of burst and yield. This information is needed to determine the areas which would likely be affected by fallout so that the public may be warned. The establishment of reporting posts and means of rapid and reliable communications is being included to provide for confirmation of forecasts. This information will be passed to the public via the Attack Warning System.

The Army was also given the task of damage and casualty assessment after a nuclear detonation. This is being considered in connection with another responsibility, that of re-entry into damaged or seriously contaminated areas. The Army, both Regular and Militia, are carrying out extensive exercises at all levels of command as part of the study on these subjects. Other aspects of national survival being studied are control of movement in damaged areas, decontamination from fallout, direction of municipal services and assistance in the maintenance of law and order.

The Army participated in the national exercise TOCSIN 60 and TOCSIN 61. These exercises provide a suitable means of exercising the National Survival Attack Warning System and emergency communications. They simulate, on a national scale, activity with respect to damage assessment, nuclear detonation and fallout reporting, re-entry, and other aspects of national survival. These exercises are of particular value in that they provide an opportunity for federal, provincial and Army officials to work as a team.

ROYAL CANADIAN AIR FORCE

General

The role of the RCAF is the composite of the many different tasks for which the RCAF has been assigned responsibility and which the RCAF performs in support of Canadian defence policy and its objectives. For the most part, RCAF operational forces operate in an environment where they are part of a larger NATO, Canada/US, or United Nations force.

North American Continent

In 1957, Canada and the United States agreed to integrate their efforts for the air defence of North America with the formation of NORAD. This command is responsible to the governments of the United States and Canada through the respective Chiefs of Staff organizations, and its function is to determine the requirements for and to conduct the air defence of North America based on direction provided jointly by the two governments.

Although only two of the fifteen NATO nations are directly involved, the NORAD system is an integral part of the overall NATO defence complex and follows the NATO principles of self-help and co-operation in defence matters. The main purpose of NORAD is to warn and defend the USA strategic deterrent force which, although based in North America, is present on behalf of all NATO nations and is the cornerstone of the NATO strategic philosophy of deterrence.

At present, the RCAF provides and operates the Mid-Canada Warning Line, 10 of the 35 heavy radars

(plus 5 USAF funded and RCAF manned) for the Pinetree Line, and CF-100 interceptor aircraft in the NORAD system. Additionally, the RCAF provides operational personnel on the DEW Line. The program for the future is 2 squadrons of Bomarc interceptor missiles, 7 additional heavy radars and a SAGE Direction/Control Centre. The CF-100 interceptor has a limited capability to perform its task. Four of the nine squadrons of CF-100 aircraft are being disbanded in 1961.

The RCAF operates a maritime squadron on the west coast, which in partnership with the Canadian Navy under the single control of the Canadian Maritime Commander Pacific, and in co-operation with US forces, helps defend the western sea approaches to North America.

The Canadian Army is responsible for defence against airborne, amphibious and commando type operations and the RCAF is responsible for providing the air support. The RCAF also has the responsibility to provide air support for the Canadian Army force assigned for the training of paratroops and for the mobility exercises which involve both airborne and air transported operations.

Defence of the NATO Area

Part of the Canadian contribution to NATO collective forces in Europe is the RCAF Air Division which at present consists of eight F86 and four CF-100 interceptor squadrons plus a controlling radar and combat operations centre. The RCAF force operates under the immediate control of the Commander 4th Allied Tactical Air Force, who is responsible for air defence and tactical air operations in Central Europe. Commencing in 1962, the eight F86 squadrons will be re-equipped with

the CF-104 aircraft and their role will be changed from air defence to that of providing strike and reconnaissance support to ground forces. With the change in role, this RCAF formation will continue to operate under 4 ATAF in the same area of Europe.

Defence of the North Atlantic area of NATO and the sea approaches to North America is provided by NATO nations on a collective basis in the same manner as for Europe except that forces remain under national control in peacetime but would be assigned to the single control of the NATO Supreme Allied Commander Atlantic in an emergency. The RCAF provides two squadrons of Argus Maritime Patrol aircraft based on the east coast at Greenwood, NS and Summerside, PEI. The Canadian Maritime Commander Atlantic has operational control of both Navy and RCAF forces.

As a contribution to the US strategic deterrent forces upon which all NATO nations depend for security, the facilities are provided at four RCAF bases in Canada for the support of US tanker aircraft used in the aerial refuelling of strategic aircraft.

The RCAF assists the Air Forces of our NATO allies by providing pilot and navigator training in Canada for trainees of the Air Forces of Norway and Denmark, and by providing an RCAF Advisory Group in Germany to assist the German Air Force in fighter operational training.

United Nations

When Canada accepts a commitment to provide forces for the peace-preserving activities of the United Nations, the RCAF is called upon to provide air transport support. Since 1956 the RCAF has had a unit of seven

aircraft based in Egypt to provide the United Nations Emergency Force with reconnaissance and light air transport support. The provision of Caribou aircraft to this unit during the past year has improved its capability to meet the requirements of the UNEF. During the past year the RCAF has provided an Air Staff including a communications element to co-ordinate and control the operations of transport aircraft provided by all contributing nations in support of the UN Force in the Congo, although the RCAF has no aircraft permanently deployed in the Congo. In addition, the RCAF provides regular transport flights from Canada to Egypt and the Congo for the support and personnel rotation of the Canadian components of United Nations forces located in these areas. The RCAF also provides transport for Canadian personnel on the international commission in Indo-China.

Air Transport Support of Canadian Forces

The RCAF has the responsibility for meeting the air transport requirements of the Department of National Defence and all Canadian military forces in peace and war. In peacetime, the RCAF Air Transport force undertakes airlift tasks which are required to maintain Canadian Military forces assigned to NATO and Canada/US defence at a high state of readiness to meet an emergency, as well as completing airlift tasks in support of the United Nations. This peacetime employment serves to maintain the air transport force at the required state of proficiency and readiness to meet an emergency. In an emergency, the air transport force would be required to react quickly and to operate at maximum capacity to provide the airlift required to support the operational plans of the Army, Navy and RCAF.

The re-equipment program of the RCAF Air Transport Command will be completed by the end of 1961. This involves the introduction into operational service of twelve CC106 long-range aircraft, four C130B cargo aircraft, ten CC109 medium range aircraft and four short-range Caribou aircraft. This modernized force will provide the RCAF Air Transport Command with increased capability and flexibility to meet its assigned responsibilities.

Air Search and Rescue

The RCAF is responsible for co-ordinating and providing air search and rescue services for aircraft and marine craft in distress in Canada and its sea approaches to meet the domestic requirements and international obligations of Canada. The RCAF is assisted in this task by the RCN, the Army and several government departments and civilian agencies. The RCAF provides Rescue Co-ordination Centres at Halifax, Torbay, Trenton, Winnipeg, Edmonton and Vancouver, and Rescue Units composed of aircraft, and specialized equipment and personnel at Greenwood, NS, Torbay, Nfld., Goose Bay, Nfld., Trenton, Ont., Winnipeg, Man., Fort Churchill, Man., and Sea Island, BC. In addition to these RCAF units which are employed continuously on search and rescue duties, other elements of the RCAF are employed on specific search missions on a temporary basis. The radar network of the air defence system provides valuable assistance in search and rescue operations, and through the provision of radar advisory service to aircraft generally, helps to reduce the frequency of search and rescue incidents. In the past year, the Search and Rescue organization conducted forty-eight major search operations, twenty-four for civilian aircraft, eight for military aircraft, thirteen for marine craft and three for missing persons. In addition,

one hundred and ninety-six Mercy Flights were completed, and there were seventeen hundred and ninety-seven incidents where aircraft and marine craft were located by a communications search without mounting a major search operation. During the past year, ten CSR 110 Albatross aircraft have entered service with Rescue Units to replace the Canso aircraft in this role.

RCAF Auxiliary

Members of the RCAF Auxiliary train for essential RCAF tasks on a part-time basis and thus provide a reserve of trained personnel for use in an emergency. There are four different types of RCAF Auxiliary units located across Canada. The role of the Flying Units is to train for tasks which will be required in support of Emergency Rescue and Survival Operations. The Technical Training Units train the technicians to maintain the aircraft flown by the Flying Units. The Medical Units provide a nucleus of fully trained medical personnel who specialize in Emergency Rescue techniques. The Aircraft Control and Warning Units, however, have been trained in air defence control and warning operations, and their emergency role has been to augment Regular Force Radar Units. Because the introduction of semi-automaticity has resulted in a reduced requirement within the air defence system for control and warning operations personnel, the provision of additional trained aircraft control and warning personnel in an emergency is no longer a requirement. Consequently, it is planned to disband the Auxiliary Control and Warning Units during 1961.

Logistics Support

The task of keeping a force of over 50,000 personnel supplied with materiel, and providing for the maintenance, repair, and modification of aircraft, allied equipment and base installations is the responsibility of RCAF Air Materiel Command. During the past year, an Electronic Data Processing System has been installed which provides centralized stock control and has greatly improved the management of the RCAF logistic process. When the re-equipment of Air Transport Command is completed this year, increased use will be made of air transport in the distribution of materiel to bases in Canada, Europe and Africa. The combination of these two measures will improve the efficiency of the overall operation by providing faster movement of materiel from supplier to user while reducing costs through reduced pipeline holdings, and reduction in storage installations.

THE DEFENCE RESEARCH BOARD

General

The scientific program of the Defence Research Board has four basic objectives. These are:

1. To provide scientific advice to the Minister of National Defence, to the Chiefs of Staff and to the Armed Forces.
2. To provide for the research needs of the Armed Services.
3. To contribute to the collective security of the NATO Alliance.
4. To encourage and support basic research of defence interest in Canadian universities.

With the added complexity of present day and future weapons the advisory role of the Board is becoming increasingly important. In pursuance of this role, the Board supplements its feasibility and exploratory investigations by co-operating closely with the US, the UK and other countries of NATO to ensure a full understanding of technological developments abroad.

The Board is making a contribution to the common defence effort by establishing joint programs with the US and the UK; by bipartite agreements with her NATO partners for the exchange of defence scientific information in fields of mutual interest and by the recently approved program of Canadian Defence Research Fellowships. This latter program provides an opportunity for defence scientists from NATO countries to gain valuable experience by spending one to two years working in a

DRB establishment. In addition, the Board has provided scientists to the staffs of the SHAPE Air Defence Technical Centre at The Hague and the SACLANT Anti-Submarine Warfare Research Centre at La Spezia, Italy.

Air defence, particularly as it applies to ballistic missiles, is the most difficult and urgent defence problem. In consequence, a large proportion of the Board's resources is directed towards its solution. Among the major projects are studies at the Canadian Armament Research and Development Establishment and the Defence Research Telecommunications Establishment applicable to the anti-intercontinental ballistic missile problem. These deal with the re-entry phenomena surrounding a ballistic missile as it comes back into the earth's atmosphere, and with the influence of the aurora on radar detection and tracking.

The submarine threat has assumed much larger proportions with the advent of nuclear powered craft and the ability to launch intermediate range ballistic missiles while either surfaced or submerged. Attempts are being made to increase the emphasis on researches both basic and applied which may lead to either new or improved methods of detection, tracking and destruction of the modern submarine.

Operational research and systems evaluation has developed as an important aid to military planning. There has been an increasing need for this type of scientific assistance due to the growing complexities and cost of modern and projected weapons and weapons systems. By means of this science, the probability of success of a course of action can be carefully assessed and more accurately forecast.

In the field of defence against nuclear, biological and chemical warfare, considerable work is in hand to

acquire scientific knowledge which can be applied to the development of protective measures, both passive and active, against the use of these weapons.

In the broad area of the biosciences, there is a comprehensive program of research into psychological and physiological problems of defence significance. A strong medical advisory function has continued on behalf of the Armed Forces. The effort to improve rations and clothing, and the packaging and storage of the former, has resulted in several useful developments.

The possibility of nuclear warfare presents problems of surveillance, communications and supply. Research in the establishments and under extramural contracts covers such matters as battlefield surveillance and intelligence and vehicle mobility.

Activities

The highlights of the Research program during 1960 include some accomplishments and a considerable measure of progress in most of the scientific areas of defence interest.

Noteworthy in the anti-submarine field was the announcement of the acceptance by the RCN and the RN of the variable depth sonar (VDS) - a new submarine detection system marking a significant advance in anti-submarine warfare. The VDS is the product of 10 years of basic and applied research at the Naval Research Establishment at Dartmouth, NS.

The advent of the nuclear submarine and its ability to travel under ice for long distances has emphasized the need for a better understanding of the behaviour of

sound in ice covered waters. The Pacific Naval Laboratory in Esquimalt, BC started research expeditions to investigate some fundamental aspects of the detection of submarines operating under ice in the Arctic Ocean.

Two launchings at Fort Churchill, Manitoba, marked the first firings of a rocket named Black Brant II being developed at the Canadian Armament Research and Development Establishment in Valcartier, Que. The Black Brant II is a Canadian developed research rocket being designed to attain relatively high altitudes to further upper atmosphere investigations by the Board and by other scientific agencies.

A Canadian contribution to US studies in the A/ICBM field was the joint RCAF/DRB project LOOK-OUT. This resulted in the successful recording of radiations from rocket nose cones fired from Cape Canaveral, and re-entering the earth's atmosphere in an area adjacent to Ascension Island in the South Atlantic. The recordings were made by instruments designed at the Canadian Armament Research and Development Establishment and flown in wing pods of CF-100 fighter-interceptor aircraft. This information, when analyzed, should help to clarify the feasibility of developing certain systems for the detection of ICBMs.

The Defence Research Telecommunications Establishment continued its studies of the upper atmosphere. A series of eight high altitude rockets were launched at Fort Churchill and provided much important data. A joint project with the US National Aeronautics and Space Administration is also underway which involves the launching of an instrumented satellite. The Defence Research Telecommunications Establishment is building the satellite and developing the instrumentation. The National Aeronautics and Space Administration will

provide the launching facility. It is anticipated the satellite will be launched early in 1962.

The Defence Research Medical Laboratories at Toronto developed a method for rapid freeze-drying of meat and fowl and this is now being placed on a commercial basis by firms in Toronto and Hamilton. After initial running-in tests, quantity manufacture of dehydrated foods for the Armed Forces and the civilian market can be effected.

The Suffield Experimental Station, near Medicine Hat, Alberta, is continuing its investigations into the behaviour of shock blast waves with further trials involving large scale non-atomic explosions. The most dramatic trial in the series took place in August 1960 when a 40,000 pound hemisphere of TNT was exploded. The experiment permitted comparisons of blast-measuring instrumentation used by Canada, the US and the UK during the past nuclear trials. Assessment of damage to Service equipment placed in the trial area was also conducted.

The Board's organization remained unchanged during 1960 with the exception of the creation of a Directorate of Maritime Research, in recognition of the growing importance of the problems in the anti-submarine warfare field.

The Board's activities in the international field have continued to expand.

**DEFENCE APPROPRIATIONS
AND
EXPENDITURES**

DEFENCE APPROPRIATIONS AND EXPENDITURES

The defence appropriation requested for 1961-62 amounts to \$1,614,500,661. The initial appropriation requested in 1960-61 was \$1,593,272,266 but to this must be added supplementary appropriations amounting to \$12,530,588. Thus the appropriation requested for 1961-62 exceeds the total appropriations for 1960-61 by \$8,697,807.

In addition to the appropriation requested for 1961-62, provision is made in the estimates for the expenditure of \$6,000,000 from the Replacement of Materiel Account operated under Section 11 of the National Defence Act. The amount provided from this source in 1960-61 was \$3,000,000.

The tables on pages 47 and 49 show actual expenditures by Service and by cost category for the fiscal years 1952-53 to 1959-60 inclusive. These tables also show appropriations and estimated expenditures for the fiscal year 1960-61 and appropriations requested for 1961-62.

Departmental Administration

This vote provides for the estimated 1961-62 requirements of the civilian staffs of the offices of the Minister, the Associate Minister and the Deputy Minister. The total number of civilian positions provided for in 1961-62 is 661 as compared with 670 in the preceding year. This provides for the staffing of the various branches servicing the Department such as the Central Registry, Chief Auditor, Superintendent of Civilian Personnel, the civilian component of the Judge Advocate

General's branch, the Departmental Library, etc. The financial provision for the establishment of 661 is reduced by 6% to allow for anticipated vacancies resulting from staff turn-over and delays in recruiting which is equivalent to about 40 positions.

Inspection Services

Votes 233 and 234 provide for the estimated 1961-62 requirements of Inspection Services. Provision is made for a civilian establishment of 1,409 positions, the same number as in 1960-61. While the staff level has been maintained, the workload has been increased by the addition of inspection responsibilities for installations of equipment for Sage and the additional radars on the Pinetree Line. It is this factor which is chiefly responsible for the increase of \$20,000 in the provision for travelling expenses. In addition to the civilian staff Inspection Services employ 9 Army officers, 2 warrant officers and 1 Air Force officer on a seconded basis.

Royal Canadian Navy

The 1961-62 estimates provide for a civilian establishment of 11,583 positions of which 200 positions apply to the RCN Reserve Force. This represents a reduction of 390 positions from 1960-61. In calculating the financial provision it is assumed 4.5% of these positions will be vacant due to staff turnover and other factors leaving provision for a net total of 11,062 continuing civilian employees.

The 1961-62 estimates provide for an average strength of the RCN Regular Force including ROTP cadets of 20,720 all ranks which is the same number as provided for in 1960-61.

The 1961-62 Operations and Maintenance estimates are about \$11,000,000 higher than 1960-61. About 90% of the increase is in Salaries and Wages and Pay and Allowances and results from the salary and pay increases announced during 1960-61.

The RCN Construction and Major Equipment estimates of \$71,823,500 for 1961-62 are \$2,435,500 lower than 1960-61; \$1,732,000 of this reduction is in construction and \$703,500 in major equipment.

The principal item which accounts for more than half of the Navy requirement for major equipment in 1961-62 is \$35,000,000 provided for the continuation of the construction of 6 repeat Restigouche class destroyer escorts. This ship-building programme was started in 1957-58 and expenditures to March 31, 1961 are approximately \$36,000,000. Another major item in the 1961-62 ship programme is the Tanker-Supply vessel on which work was started in 1960-61. \$5,000,000 is provided for the continuation of this project in 1961-62. Also included in the 1961-62 ship-building programme is \$1,400,000 for the construction of 11 auxiliary vessels and yardcraft.

A conversion programme to provide improved submarine detection equipment and to fit helicopter landing platforms on HMCS Crusader and the 7 St Laurent class destroyer escorts estimated to cost \$21,600,000 is expected to get underway in 1961-62 with an initial expenditure of \$1,000,000. An amount of \$3,000,000 of a total of \$23,800,000 is provided in 1961-62 for the procurement of 12 helicopters that will be employed in the anti-submarine role on the aircraft carrier and on escort vessels. The 1961-62 estimates also contain approximately \$3,500,000 of a total of \$11,700,000 for improved sonar equipment including variable depth sonar.

Canadian Army

The 1961-62 Army estimates provide for an establishment of 17,587 continuing civilian employees. This includes civilians employed with the Regular Army and the Militia. This represents a reduction of 830 positions from 1960-61. The financial provision for the 1961-62 civilian establishment is further reduced by approximately 4% or the equivalent of about 703 civilians leaving net provision for approximately 16,884 continuing civilian employees.

The provision for Army Pay and Allowances is based on the same estimated average strength as in 1960-61, i.e., 47,799 all ranks in the Regular Army including apprentices and ROTP.

Estimated Operations and Maintenance costs of the Army in 1961-62 are up by \$8,685,000 over 1960-61. This increase is to a very large extent due to the increases in the rates of salaries and pay and allowances announced during 1960-61.

The 1961-62 estimate for Army construction amounting to \$29,300,000 includes the continuation of expenditures for National Survival. This includes provision for improved communication facilities in an emergency, attack warning system sirens and nuclear detonation and fallout reporting centres. Estimated expenditures on facilities related to the survival role in 1961-62 are \$22,300,000. In addition provision is made for expenditures of \$3,813,000 on Army station development, \$2,000,000 on miscellaneous construction of a minor nature and \$625,000 for married quarters and schools.

The Army major equipment programme includes provision for improvements to the fire power of the Centurion tank. The estimated total cost of this programme is \$6,000,000 of which the estimated expenditure in 1961-62 is \$587,000. Provision is made for an estimated expenditure of \$5,000,000 on C42 vehicular radio sets. In the weapons category there is provision for expenditures in 1961-62 of \$1,141,000 on the 7.62mm FN rifle \$330,000 for the 9mm sub machine gun and \$4,964,000 for ammunition for these weapons. The procurement of launchers for the 762mm rocket involves a total outlay of \$1,972,000 of which \$1,211,000 has already been spent. It is estimated that a further \$230,000 will be expended on this programme in 1961-62.

A pilot production run of 20 models of the Bobcat, a light armoured tracked carrier will be commenced in 1961-62. This programme is estimated at \$3,700,000 of which \$1,000,000 is provided in the 1961-62 estimates. The estimates also contain provision for the procurement of 19 light reconnaissance helicopters for the Army at a total cost of \$1,824,000 of which it is estimated that \$850,000 will be spent in 1961-62.

Total expenditures in 1961-62 for various equipments required in connection with survival operations by the Army are estimated at \$9,600,000.

Royal Canadian Air Force

The 1961-62 estimates are based on a total establishment of continuing civilian employees consisting of 13,754 positions as compared with 14,022 in 1960-61, a reduction of 268 positions. The financial provision is reduced by 4.7% in respect of vacancies, staff turnover etc., leaving net financial provision for about 13,108 continuing civilian employees.

The projected average strength of the RCAF Regular Force for pay and allowances purposes in 1961-62 is 51,439 all ranks including 748 ROTP cadets. The average strength provided for in 1960-61 was 51,524. The phasing out of Auxiliary Aircraft and Warning units has the effect of reducing the RCAF Auxiliary Squadron strength by about 1,400 personnel which accounts for the reduction in pay and allowances for the Reserve Force.

Notwithstanding the increased requirement in 1961-62 for salaries and pay and allowances, the total Operation and Maintenance estimates of the RCAF have been maintained at approximately the same level as in 1960-61 because of reductions in other items in this Vote. The most significant of these reductions occur in aviation fuel and the repair and upkeep of equipment. Both of these reductions result from a substantial reduction in estimated flying hours in 1961-62 chiefly because of the scheduled phasing out of four CF100 squadrons.

During 1961-62 the RCAF will commence long range transport operations with CC-106 aircraft. It is intended to provide as far as possible by this means the support requirements of the Air Division in Europe which will result in the reduction of and possibly the eventual closing of the supply depot at Langar in the United Kingdom.

The 1961-62 major construction estimates of the RCAF provide for expenditures on approximately the same level as in 1960-61. The CADIN portion of the programme, i.e., Sage-Bomarc-Heavy Radar programme accounts for about \$38,000,000 of the \$52,578,000 provided for construction. Included in this portion of the programme is provision for 730 transportable homes at an estimated cost of \$5,822,000. This is a new development to provide married accommodation in isolated areas where the construction of permanent homes is not economical. The regular construction programme of the RCAF

includes provision of \$2,440,000 for the construction of permanent married quarters. Other significant items in the regular construction programme are a technical training building at Camp Borden, continuation of the station development programmes at maritime stations Greenwood and Summerside and the construction of facilities for ground TACAN installations at various locations across Canada.

Of the \$146,800,000 provided for aircraft in the 1961-62 estimates \$125,000,000 is in respect of CF104 production. First deliveries of these aircraft will be made during 1961-62. This is a \$420,000,000 programme of which about \$125,000,000 will have been spent as at March 31, 1961. Final deliveries of the Argus aircraft will be completed in 1961-62 and the estimates contain provision for minor expenditures to complete this programme. The total cost of 33 Argus aircraft with support equipment has been about \$220,000,000. The programme for 12 CC106 long range transport aircraft will be completed during 1961-62 and expenditures to wind up this contract are estimated to be \$9,941,000. The total cost of these aircraft including support equipment will be approximately \$127,000,000. Other items in the aircraft programme include the procurement of 3 light helicopters at a cost of \$308,000 and residual payments of an estimated \$1,569,000 for the completion of the contract for 10 SA 16B aircraft.

In the field of electronics and communication equipment provision is made for the continuation of the programme of replacing airborne communications equipment of lower frequencies with ultra high frequency equipment. This programme is spread over several years and estimated expenditures in 1961-62 amount to \$4,100,000. The cost of airborne and ground installations of TACAN equipments in 1961-62 entail an expenditure of an estimated \$5,500,000 in that year out

of a total programme of approximately \$18,000,000. The 1961-62 programme also provides for radar improvements, airborne doppler navigation equipment and the sonobuoy requirements of Maritime Air Command's anti-submarine operations and training.

Defence Research and Development

The establishment of civilian employees of the Defence Research Board for 1961-62 totals 2,926 positions which is the same as in 1960-61. The financial provision for this establishment is reduced by about 6% to allow for vacancies resulting from staff turnover and delays in recruiting. In addition to the civilian staff the estimates provide for the pay and allowances of 32 officers and other ranks seconded to DRB from the Army, Navy and Air Force.

The DRB construction programme for 1961-62 contains provision for the completion of the high speed wind tunnel at Uplands. The cost of this project has been shared between National Aeronautical Establishment and DRB on a two thirds, one third basis. The project is scheduled for completion in 1961-62 and provision is made for DRB's final payment amounting to \$750,000. The estimates also provide for an estimated expenditure of \$795,000 for various projects at Shirley Bay which include an electronics laboratory, cafeteria extension and biological evaluation building. The DRB major equipment estimates for 1961-62 provide for the equipment requirements of field research stations.

The 1961-62 Development estimates are allocated to development projects of the three Services as follows:

Navy	\$ 4,000,000
Army	2,200,000
Air	<u>8,000,000</u>
	<u>\$14,200,000</u>

The Navy programme includes a variety of projects in such fields as hull design and ship machinery improvements, radar, communications, electronic countermeasures, armament and underwater detection equipment. The Army programme includes development projects involving weapons, ammunition, radiac detection equipment, military, electronic and electrical engineering, radar and fire control instruments, vehicles and various other projects concerned with clothing and general stores items of material. RCAF development projects are concerned with such items as instruments, photographic equipment, personal and safety equipment, telecommunications, armament and operational flight and tactical training devices.

Mutual Aid

The cash appropriation requested under this item for 1961-62 is \$15,950,000 all of which with the exception of \$150,000 is required for contributions to infrastructure and NATO military budgets. Canada's share of infrastructure costs is now assessed at 5.15%. The balance of the Mutual Aid programme consists of spares support of aircraft previously transferred to NATO countries, additional equipments available from Service stocks and NATO Aircrew training. The approximate value of each of these is as follows:

Aircraft spares support	\$ 2,680,000
Other equipment from Service stocks	18,168,000
NATO Aircrew training	<u>4,000,000</u>
	<u>\$ 24,848,000</u>

The net cost of NATO aircrew training after allowing for the recovery from Norway and Denmark of \$2,000 per navigator trainee and \$5,000 per pilot trainee is provided for in RCAF estimates. This training in 1961-62 is confined to 38 trainee spaces available to Norway and 45 spaces to Denmark plus a further 5 pilot training spaces for Turkey. Expenses in connection with the conditioning and preparation for shipment of equipment from stocks is borne by the Service concerned as a charge to its own appropriations. The aircraft spares support is provided by the RCAF and relates to F-86 and T-33 aircraft previously transferred to Greece and Turkey.

National Defence General

This vote contains the sum total of commitment authority estimated to be required by the Armed Services, DRB, Mutual Aid, Departmental Administration and Inspection Services to enter into commitments including those against future years necessary in the implementation of the programme as set out in the 1961-62 estimates. The initial allotments of commitment authority and subsequent adjustments, if required, are subject to the approval of Treasury Board.

General Services

The General Services section of the estimates includes details of financial assistance grants paid to various organizations, institutes, municipalities, etc. For the fiscal year 1961-62 these are detailed on pages 350 and 351 of the Printed Estimates and include Rifle and Military Service Associations, Military and United Services Institutes, the Town of Oromocto and grants payable to Provinces and Municipalities for Civil Defence and Related Purposes.

Provision is made for reimbursing payments to provinces and municipalities within defined limits for authorized projects undertaken locally in aid of civil defence. These funds, although forming part of National Defence estimates are administered by the Emergency Measures Organization.

Civil Pensions

This vote provides for the payment of pensions to civilians as detailed on page 351 of the Estimates. These pensions are voted annually by Parliament and provide compensation to the individuals named who were either former employees of the Department of National Defence who sustained injury whilst so employed or are dependents of deceased service personnel where the injury or death occurred under circumstances which were considered to justify the payment of compensation.

Other Pension Items

Funds are voted annually by Parliament for payments to the dependents of former members of the RCAF who were killed while on leave without pay serving as instructors with civilian training organizations operated under the British Commonwealth Air Training Plan during World War II. The purpose and nature of these payments is explained in the text of the vote which in the 1961-62 Estimates is Vote No. 250.

The remaining pension items which make up the balance of the National Defence estimates are statutory items under the provisions of the Defence Services Pension Continuation Act, the Canadian Forces Superannuation Act and the Public Service Superannuation Act. These cover the payment of pensions to servicemen or their dependents who were retired under Parts I to IV of the Defence Services Pension Continuation Act or its predecessor, the Defence Services Pension Act. They also cover the Government's contribution to the Canadian Forces Superannuation Account which is calculated as ten sixths of the servicemen's contribution to this account. Finally provision is made to cover death benefit payments in respect of deceased servicemen from the Regular Forces Death Benefit Account under the authority of Part II of the Public Service Superannuation Act.

DEPARTMENT OF NATIONAL DEFENCE

Comparison of Expenditures by Fiscal Year

(Thousands of Dollars)

DND Budgetary Components	1952-53 Expendi- tures	1953-54 Expendi- tures	1954-55 Expendi- tures	1955-56 Expendi- tures	1956-57 Expendi- tures	1957-58 Expendi- tures	1958-59 Expendi- tures	1959-60 Expendi- tures	1960-61		1961-62 Estimates
									Appro- priations	Expendi- tures *	
Navy (Cash Disbursements)	289,031	304,166	340,808	326,699	294,989	272,960	255,833	272,301	248,572	279,595	
Army (Cash Disbursements)	436,376	454,391	461,438	459,452	424,654	432,853	400,791	421,297	400,100	420,128	
Air (Cash Disbursements)	912,710	914,984	814,733	798,248	863,100	813,768	797,466	743,313	777,929	752,570	778,553
Defence Research Board	23,782	23,568	26,329	31,547	24,095	25,242	26,617	27,696	31,080	30,863	30,804
Development	19,207	17,239	23,522	32,811	45,228	53,424	47,743	11,488	14,216	12,631	14,200
Mutual Aid Infrastructure and NATO Budgets	246,355	300,228	260,022	174,966	133,553	118,464	70,711	18,380	15,540	15,540	15,950
Administration, Pensions, etc.	48,681	56,812	57,010	59,747	66,239	70,149	70,777	72,295	76,440	63,442	80,907
DEDUCT:											
(a) Mutual Aid Transfer of Equipment from Service Stocks	40,042	114,604	127,504	38,231	63,679	78,399	50,551	-	-	-	-
(b) NATO Aircrew Training Charges to Special Accounts	104,628	71,340	52,890	51,056	47,753	26,418	6,746	-	-	-	-
BUDGETARY EXPENDITURES	1,882,418	1,805,915	1,665,969	1,750,112	1,759,426	1,668,463	1,424,741	1,514,904	1,605,803	1,520,718	1,614,501

* Forecast expenditures

DEPARTMENT OF NATIONAL DEFENCE

Table of DND Expenditures by Major Category

(Thousands of Dollars)

Major Categories	1952-53 Expendi- tures	1953-54 Expendi- tures	1954-55 Expendi- tures	1955-56 Expendi- tures	1956-57 Expendi- tures	1957-58 Expendi- tures	1958-59 Expendi- tures	1959-60 Expendi- tures	1960-61	
									Appropriations	Expenditures *
Military Personnel Costs	407,148	400,155	444,943	464,491	500,261	544,835	554,268	545,311	563,117	564,309
Operations and Maintenance	409,266	439,087	466,491	524,818	563,097	603,099	591,265	586,764	623,109	579,284
Procurement of Equipment	718,086	765,088	649,542	568,907	458,637	412,354	425,923	292,481	308,984	287,303
Construction	266,399	166,861	123,421	135,814	140,430	91,907	75,772	87,830	98,353	77,782
Contributions to Infrastructure and NATO Budgets	13,438	13,274	12,069	10,541	14,040	10,468	12,406	17,410	15,240	15,040
Mid-Canada Line	-	-	833	46,327	130,469	33,210	2,196	-	-	-
GROSS CASH DISBURSEMENTS	1,814,337	1,784,465	1,717,299	1,750,898	1,806,934	1,695,873	1,661,830	1,529,796	1,608,803	1,523,718
ADD: Mutual Aid Transfers of equipment credited to Special Accounts	55,414	67,829	42,480	59,380	-	-	-	-	-	-
DEDUCT: Charges to Special Accounts	12,667 cr.	46,379	93,810	60,166	47,508	27,410	237,089	14,892	3,000	3,000
BUDGETARY EXPENDITURES	1,882,418	1,805,915	1,665,969	1,750,112	1,759,426	1,668,463	1,424,741	1,514,904	1,605,803	1,520,718

* Forecast expenditures

PRICE: 50 CENTS CAT. NO. D3-6/1962
AVAILABLE FROM THE QUEEN'S PRINTER
OTTAWA, CANADA.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1961